




Grain

ELEVATOR OPERATION
AND MAINTENANCE

March
1937



getting along

Wilferd A. Peterson

Sooner or later, a man, if he is wise, discovers that business life is a mixture of good days and bad, victory and defeat, give and take.

He learns that it doesn't pay to be a sensitive soul — that he should let some things go over his head like water off a duck's back.

He learns that he who loses his temper usually loses.

He learns that all men have burnt toast for breakfast now and then and that he shouldn't take the other fellow's grouch too seriously.

He learns that carrying a chip on his shoulder is the easiest way to get into a fight.

He learns that the quickest way to become unpopular is to carry tales and gossip about others.

He learns that it doesn't matter so much who gets the credit so long as the business shows a profit.

He comes to realize that the business could run along perfectly well without him.

He learns that even the janitor is human and that it doesn't do any harm to smile and say, "Good morning," even if it is raining.

He learns that most of the other fellows are as ambitious as he is, that they have brains that are as good or better, and that hard work and not cleverness is the secret of success.

He learns to sympathize with the youngster coming into the business, because he remembers how bewildered he was when he first started out.

He learns not to worry when he loses an order because experience has shown that if he always gives his best his average will break pretty well.

He learns that no man ever got to first base alone and that it is only through cooperative effort that we move on to better things.

He learns that bosses are not monsters trying to get the last ounce of work out of him for the least amount of pay, but that they are usually fine men who have succeeded through hard work and who want to do the right thing.

He learns that the folks are not any harder to get along with in one place than another and that "getting along" depends about 98 per cent on his own behavior.

Editorial

by DEAN M. CLARK

Nature and The Deluge

THE far flung watersheds on the western slopes of the snow-laden Appalachian Mountains wept in prophetic vision; and the greatest flood in the history of the United States was born.

First came the freshening of the rivulets swelling in turn the sluggish streams. The tributary rivers of the Ohio picked up the quickening rhythm and then the mighty Ohio River itself stirred, and surged southwest in irresistible flood. Man-made levees, man-made farms, man-made cities were crushed under countless millions of tons of Nature's pent-up wrath. On, on and on it swept to keep its rendezvous of death with the Father of Waters, the Mississippi.

Left in the flood's grim wake were 400 dead, one million homeless, and almost a billion dollars of property damage.

In the Ohio Valley and the whole Middle West, the query leaps from whitened lips: "Will the Mississippi handle the flood on the 2000 mile stretch between Cairo and the Gulf?" No one can answer; neither the hundreds of Army Engineers upon the scene nor the 120,000 desperate men laboring day and night to strengthen the levee walls. They can but toil and pray.

Nature answers to no man nor group of men. Against their puny efforts she can by a simple gesture—a shrug of her mighty shoulders—wipe out the works of their lifetime. But she also *gives* life. That is her purpose. Her abundant breast holds sustenance for all and her laws are few and simple. She is patient and long suffering but when violations of her simple laws become so widespread that they dominate an entire land, then her wrath descends in violence—a violence that smashes through man's barriers and gives the robbed soil the precious blessing of rich silt . . . *Intelligence* and not *brains* governs Nature.

Grain

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and mechanical prob-
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vators.

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Just Write

North America, the world's greatest continent, obtained this recognition by the leadership of the men who were responsible for its guidance as well as their earnest desire to please those depending upon them.

The James Stewart Corporation has earned just such a reputation in the field it serves — through their earnest desire to please—to give their customers the most modern, efficient and lasting job at an economical price.

May we show you what this reputation can mean to you?

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AIR VENTS ARE WEIGHED IN THE SCALES

by

GEORGE J. RYAN

Superintendent

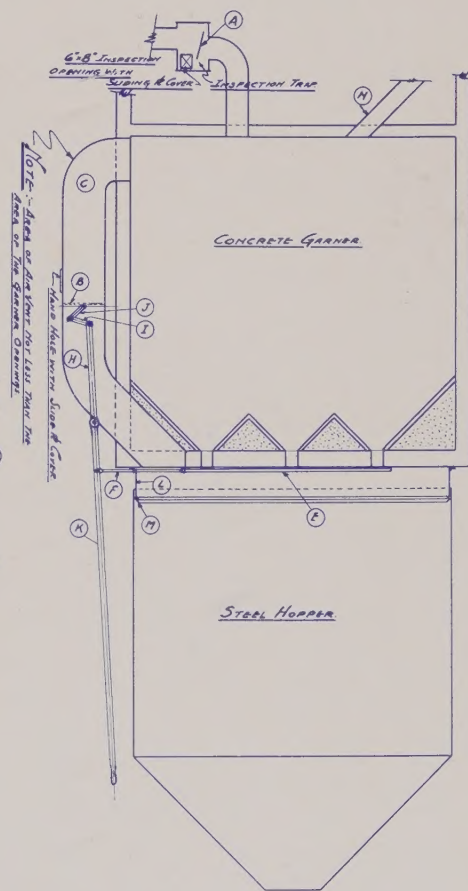
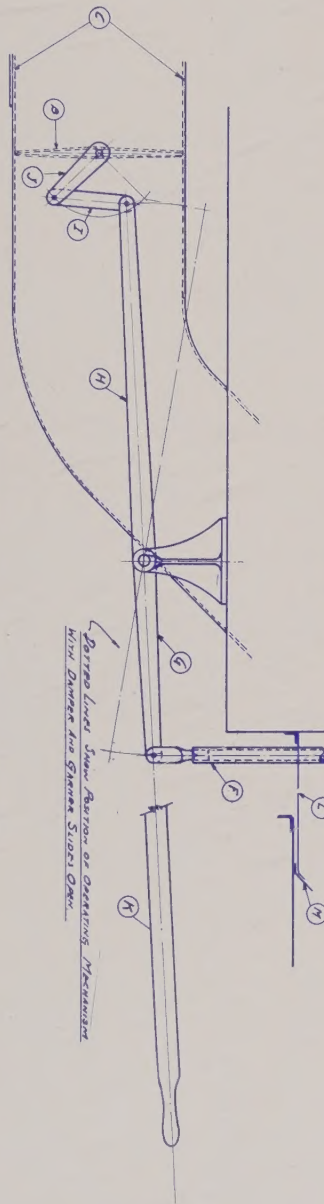
**Hallet & Carey
Company,**

Calumet Elevator,
Minneapolis, Minnesota

THE editor of "GRAIN" must have large ears. He heard about a new device for better elevator efficiency and dug up my name — (gosh knows how he found it!)—because he heard I had been looking over several installations of this new-comer lately and had come to some definite conclusions about it. I don't pretend to be a technical expert but as long as I have gone into this thing thoroughly I am glad to pass on the information to the rest of the Superintendents.

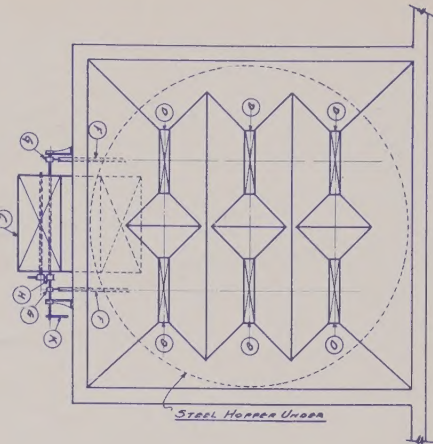
This invention is a new-type vent for hopper scales and fits a need that has long been felt. From what I have seen of it in actual operation it does a fine job of reducing to the minimum the dissemination of dust from weighing hoppers. In doing this it correspondingly reduces fire and health hazards and aids accurate weighing by relieving

ENLARGED VIEW OF OPERATING MECHANISM



SECTIONAL ELEVATION

PLAN



- (A) BATTLE
- (B) DAMPER
- (C) AIR VENT
- (D) DAMPER OPENING
- (E) DAMPER SLIDES
- (F) DAMPER SLIDE CONNECTING ROD
- (G) DAMPER SLIDE OPERATING ARM
- (H) DAMPER OPERATING ARM
- (I) DAMPER CONNECTING LINE
- (J) DAMPER ARM
- (K) OPERATING LEVER
- (L) CURTAIN GRABBER
- (M) 45° BATTLE PLATE
- (N) HEAD SPOUT

Minneapolis, Minn.

SCALE HOPPER AIR VENT

Patent Pending

DATE 3-25-1936
Mach. By N.Y.

SCALE 1/2"=1'-0"
JACOB A. HALL

This Month



SUPERINTENDENT members of the Society of Grain Elevator Superintendents of North America will this month receive a release conservatively computed by some to return hundreds upon hundreds of dollars to their firms in a position to capitalize thereon.

Every Superintendent member in good standing this year will be entitled to this highly valuable information.

Could you invest ten dollars more wisely?



SOCIETY OF
GRAIN ELEVATOR SUPERINTENDENTS
of North America



Makers of Progress



332 South La Salle Street • Chicago, Illinois



A chain is no stronger than its weakest link. Teamwork is essential in safety work."

pressures resultant from displacement of air by grain. I have sent along a few blue-prints to the magazine to illustrate the principle of the vent. By comparing the following paragraphs with the print, you will see how logically it works.

When grain flows from a supply garner into the weighing hopper a displacement of air in the hopper occurs due to the entry of grain. This, of course, results in the points brought out in the preceding paragraph. Various methods of relief of this pressure have been used. Here in Minnesota we have been attempting to relieve this pressure by the use of a gravity-operated flap valve. The trouble with this, though, is that it would only operate when sufficient displacement of air was brought to bear by a wide open valve. When it was necessary to use a half open valve, the apparatus failed to work, causing a piling up of dust in the vent which resulted in the cross-sectional area of the vent being reduced to a point where even though the supply valves were completely opened, the compression so formed would not be great enough to open the flap.

This new vent avoids trouble like this. It provides a pressure relief valve and connections by which it is positively operated in unison with the delivery valve so that it opens concurrently with the opening of delivery valve. This, of course, maintains a constant pressure relief. The escaping dust and air pressure are vented through the garner top although I've seen some types where both scale and garner were vented.

In some of the newly built elevators I have seen as many as four vents for a 2,500 bushel capacity scale. It was interesting to note that each of the four vents contained a cross-sectional area equal to one-fourth of the cross-sectional area of the scale. In other plants I have noted the use of two vents but these two maintained the "c-s" area of the scale by their enlarged size. No matter how many vents, they each work in unison with the delivery valve.

At present, I am investigating the installation of these vents in various types of elevators of years standing.

From what I have seen, the main objective in installation is to secure positive shut-off valve control and then to make sure that the venting is equal to cross-sectional area of the scale.

Although we have not as yet installed the Hawk Air Vent in our Calumet Elevator, we propose doing so as soon as conditions permit. I am happy to say they accomplish even more than I thought they would and as a matter of trade interest, I am passing this information on.

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CONVEYORS**

CALUMET
PRODUCTS

**ELEVATOR
BUCKETS**

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- SALEM
- MINNEAPOLIS "V"
- HEAVY "V"
- HAMMOND "DP"
- HAMMOND "OK"
- CALUMET
- BUFFALO
- RIALTO
- STEEL EAR CORN
- STEEL GRAIN
- TIN MILL

Our manufacturing facilities embrace the most modern equipment and machinery for the production of Elevator Buckets in types and sizes to suit every Grain handling and Milling need.

Improved design — wear and breakage resisting construction are noticeable characteristics of all "buckets" of "Calumet" manufacture.

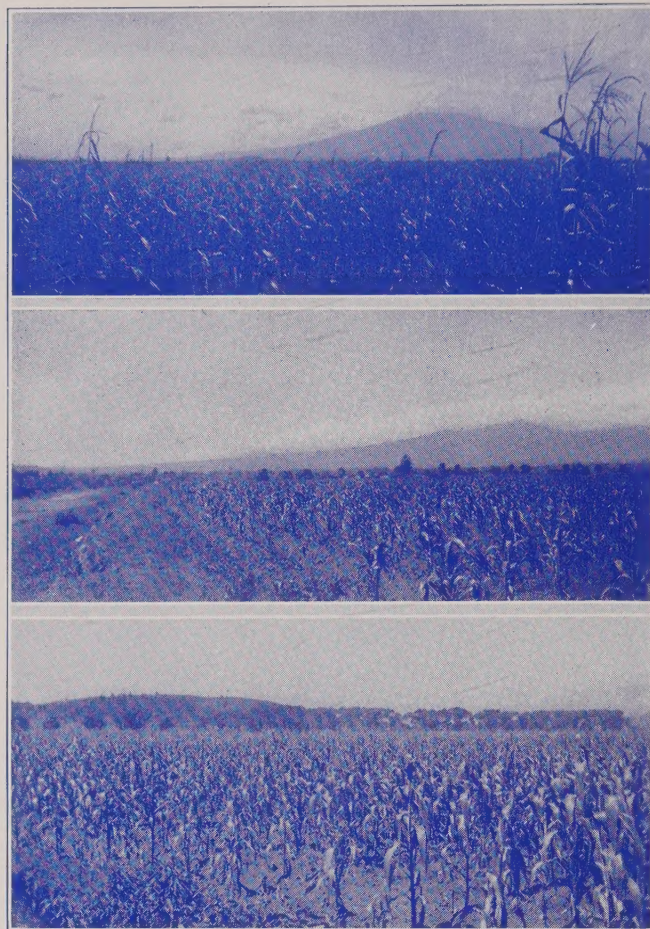
As our bucket department manufacturers every type of elevator bucket in general use today, our constant endeavor is to assure maximum capacity, low power, long service, with minimum repair and replacement expense for your bucket elevator.

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AT ALL GRAIN AND MILLING CENTERS**

In GUATEMALA They Really Appreciate CORN

NESTLED snugly at the crux of two busy thoroughfares (which obviously are without stop-lights and traffic officers) stands this imposing and parallelly famous old shrine of Guatemala City.

Day after day, and with the exception of a few sleeping hours at night, one hears a "pat . . pat . . pat . . pat." Even sauntering down the irregular thoroughfares through this Swiss Alps-like setting one sees the natives slapping something from one hand to the other closely resembling hot taffy. . . . One realizes that Guatemala is an old civilization with customs of thousands of calendars of age, but



it piques one exploring the beauties of this neighboring city of its one hundred twenty thousand natives and six thousand foreigners that this mysterious "patted" substance is not self-explanatory. True, Guatemala City is a thriving metropolis high enough with its five thousand feet elevation to be exceptionally comfortable, where its world-renowned coffee leads its exports (for the sixth place in the world)—followed by bananas, and where even though the government gobbles up any business that seems to be profitable—nevertheless their exports exceeded their imports by a tidy little sum; . . . but none of these thoughts rush to one's aid in solving the mystery. . . . Attending a Church Fiesta, where masks are the rule and where Rhumba bands supply the rythm, one still sees "patting" peasants.

Corn, dear readers, is the answer . . . and how they love it!

Corn is their principal item of daily food. Little shops dotting the narrow lanes and the more spacious courtways—sell corn . . . but not until after they take great pains in soaking it in vats for some ten hours,

grinding it with round burr stones, and adding enough spice to emit a fragrant aroma wherever one turns one's nose.

The patting one hears then is because this prepared corn batter is hot, and for the further good reason that this sort of kneads the dough and adds to its palability.

This batter is cooked like a pancake, rolled, fried, and bananas sliced and sandwiched between. Sounds good, doesn't it?

Shops thriving on this specialty, ready cooked for the curious tourists, are said to add to the thousands upon thousands of these "tortillas"—the principal mainstay daily diet—that are sold in Guatemala City every day in the year.

They know their corn! They like it and they thrive on it.



★
The science of advertising is the science of psychology. And psychology is the science of the human heart.
★

ARE YOU A LEADER?

The boss drives his men; the leader coaches them.

The boss depends upon authority; the leader on good will.

The boss inspires fear; the leader inspires enthusiasm.

The boss says "I"; the leader says "We."

The boss assigns the tasks; the leader sets the pace.

The boss says, "Get here on time;" the leader gets there ahead of time.

The boss fixes the blame for the breakdown; the leader fixes the breakdown.

The boss knows how it is done; the leader shows how.

The boss makes work a drudgery; the leader makes it a game.

The boss says "Go"; the leader says "Let's go."

REPUBLIC ELEVATOR BELTS

LOWER the Cost of Handling Grain

- • • The high cost of handling grain can be considerably lowered by using elevator belts that stay on the job. Republic Belting is noted for its outstanding performance under constant service and heavy loads.

Only the finest materials are used in the construction of Republic Elevator Belts. The body fabric is unusually strong to prevent the buckets from pulling loose. Covers are made from a tough, abrasion-resisting rubber for long wear under severe conditions.

Republic Belts are cutting costs in grain elevators everywhere—and they can do it for you. Write or call for complete information.

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Wire Ropes Efficiency

By JOHN S. BUSH

Kingston (Ont.) Elevator Company

Today, perhaps more than ever before, the subject of "wire rope service" or "life" is engaging the attention of grain elevator operators. Wire rope, as all other materials of handling, such as rubber belts, buckets, lagging, etc., **SHOULD** be evaluated on a dependability basis. Its economy **SHOULD** be judged from the standpoint of its cost per ton or thousand bushels handled, per miles of travel or other unit of service measurement. It is well to remember, however, that many factors quite apart from the inherent quality of a wire rope affect the service it gives. One is the skill of the operator. Another is the operating conditions. A third is the condition of the equipment. A fourth is the care the wire rope receives. These four factors vary from time to time, often greatly, and the life of the rope varies accordingly.

It follows, therefore, that the economy of a wire rope should be determined on the basis of **average** service and not on the performance of a single rope.

DURING the past quarter century wire rope has played the leading role in some of the greatest engineering feats throughout the world. The Welland Ship Canal is a good example. Were it not for the great advances made in wire rope perfection it is doubtful whether this marvelous piece of engineering would have been possible.

While wire rope is becoming one of the most important elements in engineering it is considered by many as just a piece of steel, made especially for abuse and in many cases is ruined before being actually put to work through lack of knowledge in handling same. In my experience with wire ropes I have found that by considering them as a finely constructed piece of machinery with many moving parts much can be accomplished with good results and at a minimum of cost.

When a new elevator or conveyor belt is installed every care is taken to insure against abrasion on the elevator casing or concentrator frames, pulleys are properly aligned and the splice is made

carefully to avoid running crooked because of the belt's comparative expense and the fact that it is made of rubber. If the same consideration were given a wire rope fewer failures would be reported. "We always hear of our failures," a prominent wire rope engineer once told me, "but seldom of our successes." Which would suggest that invariably the blame is laid to the manufacturer when a wire rope fails or gives short service.

In modern Grain Elevators wire rope plays a very important part in innumerable mechanical devices and arrangements. In many cases it is the only "safety device" and on hoisting machines it is generally the main element of operation.

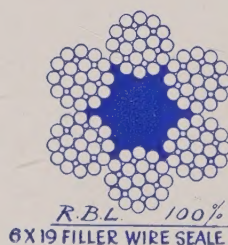
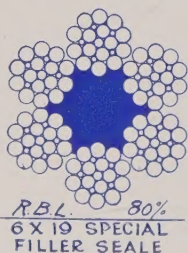
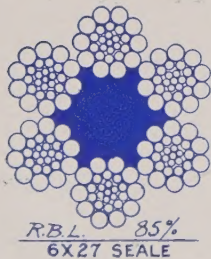
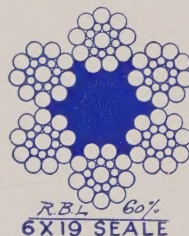
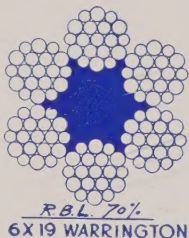
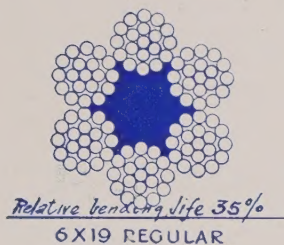
Bending

When a wire rope is operating over a sheave it will be obvious that the wires in the strands and the strands in the rope must have some relative movement or there would be a condition approaching that of a solid bar and the normal flexure of the rope could not take place. It follows therefore that there must not only be a relative movement of the strands but of every individual wire in the rope. Keeping this fact in mind, it will be apparent that if the individual wires cross each other in the constructional lay of the rope that the friction thus created will be more pronounced and will result in the rapid wearing and breaking of the wires. However, if the component wires in the strands interlock the entire length of the strands the internal friction is greatly reduced, as also is the unit bearing pressure between the wires.

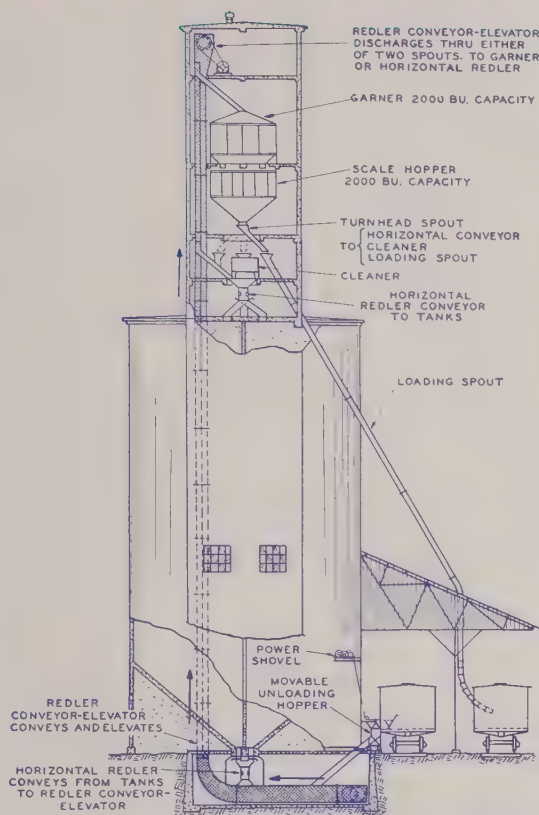
The 6x19 filler wire Scale illustrated is a rope of this construction, the strand itself being termed "a single operation" strand. This rope has 100% bending life compared with other ropes of the 19 wire class.

Bending Stress

The stress created in a wire rope operating over a sheave is calculated by many



AVOID DUST HAZARD... Convey Grain in a REDLER Conveyor-Elevator



Left: REDLER Conveyor-Elevator installation in grain elevator. Three REDLERS turn and load out 10,000 bushels per hour at grain speed of 150 feet per minute.

Right: L-Type REDLER Conveyor-Elevator as auxiliary unloader handling soy beans, shows how flexible REDLER can be fitted into small space. Takes place of several other conveyors.

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varying formulas, however they are very conservative and results by comparison have a range of over 91% difference. The

Ed

formula in general use is $f = \frac{E d}{D}$; where

D

f =bending stress in pounds/square inch, E =modulus of elasticity of wire in pounds/square inch, d =diameter of outside wire (ins.) and D =sheave tread diameter (ins.). Another is given as $0.44 \frac{E d}{D}$

$f = \frac{E d}{D}$ which differs from the former

D

by 56%.

It is readily admitted by engineers in the trade that the existent formulas for bending stresses in wire rope do not give correct results because of the number of variables omitted, however, while the bending stress may amount to quite a percentage of the working stress of the rope it is never serious enough that it cannot be compensated for by the factor of safety allowed.

The Why of Failures

There are many reasons why a wire

rope fails to give satisfactory service in a Grain Elevator. Some of the reasons seem trivial to those not familiar with the fundamentals and physical properties of the numerous different constructions.

The chief reasons of failure can be tabulated as follows:

1. Choosing the wrong construction for the type of work required of it.
2. Carelessness in installation, formation of "kinks," etc.
3. Excessive bending over small sheaves and rollers.
4. Badly aligned sheave and drum equipment.
5. Lack of proper lubrication.

Abrasion

Abrasion is caused by several conditions, the most common of these being: First, Operating over sheaves and rollers; Second, Dragging of rope along the ground; and Third, Bad alignment of sheave equipment.

It is most essential that sheaves are kept in first class condition. In any installation the condition of the rope grooves is just as important as the bush-

ings, pins or shafts. If a rope is running in a badly worn groove, excessive radial pressures are created. In the case of a new rope operating in a worn or corrugated groove the rope's life will be quickly reduced as the lay of the new rope will not match or fit the corrugations of the sheave worn by the old rope. Acceleration in the speed of the rope or applying varying loads will seriously aggravate this condition.

Lang lay ropes, in which the wires of the strands are layed up in the same direction as the strands of the rope, will withstand abrasion much better than a regular lay rope in which the wires are layed in the opposite direction to the lay, the Lang lay provides more wearing surface to the crowns of the individual wires of the rope. However, these ropes are limited to certain uses and conditions of operation and require the skill of experienced workmen to insure satisfactory service.

Sometimes a flattened strand rope can be used to overcome abrasion but again, these ropes are limited to special condi-



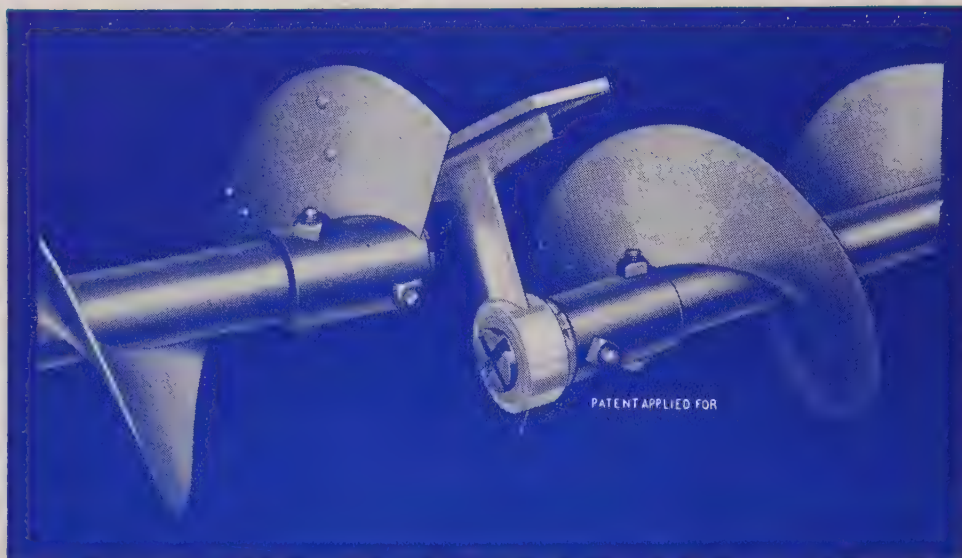
Necessity is the argument of tyrants; it is the creed of slaves.—William Pitt.

DEMOUNTABLE Spiral Screw Conveyor Coupling

Now it is possible to make replacements or remove damaged Conveyor Spirals, Hangers and Couplings in a fraction of the time previously required to make such repairs.

With this new Coupling and Hanger a permanent job can be installed in less time than it usually takes to make temporary repairs.

This assembly will fit any space where there is now a standard coupling and hanger.



Bronze Bushed Welded Steel Hangers

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tions and it is always good policy to consult the manufacturers before deciding on its use where a round strand rope has been previously used.

Kinks

Much research work has been done by wire rope engineers to determine the loss of efficiency caused by "kinks" in wire ropes. There are two kinds of kinks, right handed and left handed. A right handed kink tends to tighten the rope lay in a right-lay rope and compresses the hemp center, at the same time disturbing the equilibrium of the rope for a considerable distance along the rope. Some users of wire rope are of the opinion that if a rope is "kinked" during installation, that it can be removed by applying tension. This is not the case. Tests have shown that when a wire rope is "kinked" that the fracture is permanent. While a kink can be partially removed in appearance the fact remains that the damage is done not only to the formation of the rope and strands but to every individual wire in the rope. If a rope is kinked to such an extent that it threatens its safe operation it is better to cut out the kink and have the rope spliced by a competent wire rope splicer. A well made long splice will develop up to 80% of the

original breaking strength of the rope whereas the loss occasioned by a kink is uncertain. Long splicing however is not recommended for hoist ropes, especially where the rope and load are free to rotate.

A left handed kink is such that the tendency is to untwist the lay of the rope in a tight lay rope. As the kink straightens out the strands spring out from the hemp center and the extra twist that is thrown in the wires of the strands forces the wires from their relative positions. A fracture such as this causes great torsional stresses in the individual wires of the rope and if subjected to additional impact or acceleration, stresses during operation the rope are liable to sudden breakage with probable loss of life and property. The answer to the question, "What does a kink do to a wire rope?" is, "Shortens rope life . . . and not infrequently causes bad accidents or deaths."

Choosing a Wire Rope

In grain elevators the choice of a wire rope for certain conditions of operation sometimes presents quite a problem and unless careful consideration is given to every phase of the rope's future life prior

to its purchase, the result is often a waste of time, material and labor. So the advice of manufacturers employing a staff of competent engineers to solve such problems for their customers is invariably worth many thousands of feet of rope. As a general rule in choosing a wire rope **the outer wires should be large enough to withstand the wear and abrasion, but limited to such a degree that they will not break down under the process of bending around the sheaves while in operation.**

Lubrication

Lubrication of wire ropes is one of the hardest problems to solve in grain elevators, especially in ropes that are continually running or submerged in grain such as shovel ropes, etc. It is a matter of opinion whether or not it really pays to lubricate such ropes as their "life" under good operating conditions is comparatively short. In order to keep the rope in a well lubricated condition it would be necessary to lubricate for every few thousand bushels handled. The dust from the grain will absorb the lubricant rapidly and cause it to fall off the rope, even where the interior of the rope is well lubricated after a few hours of running

(Concluded on Page 19, first column)

Dear Dean:

IT HAS always seemed to me that the passing away of a year is like losing an old friend. Each individual year develops its own personality. There are the sad years and the glad years, the bitter years and the sweet years. Each leaves an unmistakable impression on us and the only thing they all have in common is that they always leave us wiser and the better for having known them.

Good old 1936, to whom we so recently said goodbye, can never be forgotten. It was just the stimulating type of year this world needed to shake it from its gloom and to set eager feet gaily marching up the highroad to sunshine. Consider what happened. Cataclysmic events—some good, some bad—but they all served their purpose. Let us review them.

Time: Spring.

Scene: The South and East.

Roaring walls of water irresistably sweeping through man-made barriers. The floods were on!

Time: Summer.

Scene: The World.

Choking, blinding dust rolling up the dread harvest of the drouth. Land dying of thirst!

This is just the start, Dean, but it already demonstrates the startling qualities of 1936.

Corn marched on to new achievements during the year. Of importance to every inhabitant of this merry old globe is the new power released from corn—super-explosives and the latest gasoline mixture on the market. Oats, not to be outdone, follows suit by being acclaimed the “hull works” in the field of medicine through new laboratory discoveries of the astounding medicinal value found in the oat hull.

Another “shaker upper” of 1936 is found in the bleating of newspaper headlines about the vast importations of foreign corn. Of course, all of the grain trade knew that the entire importation of corn to the North American Continent equalled but one-half of the drouth loss in the state of Iowa alone. But the weeping and wailing in print served its purpose—it made the man on the street conscious of the grain industry and brought to him a realization of what grain means to him.

Movement of all grains and derivatives showed an 18 percent increase over 1935.

Now, Dean, let us travel in retrospect and pick out the high points of last year's activities that shared the spotlight with grain. What do you say we tabulate them?

MILLIONS

of dollars go up in smoke every year—just because of

DUST EXPLOSIONS

Terminal elevators throughout the country are protecting elevator legs from dust explosion hazards with

ROBERTSON SAFETY VENTILATORS



For balanced ventilation of grain storage bins a growing number of elevators are using

ROBERTSON CAPACITY VENTILATORS



For light-weight, economical, long-lived corrugated roofs and side walls of terminal buildings, use

ROBERTSON PROTECTED METAL



Write today for information

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More **EFFICIENT**

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Full Information on Request

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2938 Pillsbury Ave., Minneapolis, Minn.

First, of course, is the change of crowns in the mighty British Empire. Although there has been a deuced amount of talk regarding this world-shaking event, I still hold with the old Cornishman who said, "The roads the Romans built are still being used in England and, lad, the roads we are building now will be in use 2000 years from this day!"

The sweeping victory of President Franklin Delano Roosevelt in the 1936 election chalks up a new high in electoral opinion. The statistical department, Dean, informs me that F. D. R's totals received votes surpassed that of any previous election in the world's history.

Spain electrified the world by declaring a state of war within her borders—and four billion humans watch with bated breath.

Hitler, host of the Olympic Games, threw his armed forces into the Rhineland and marched into the headlines.

Mussolini substituted bayonets for missionary soup in dark Africa. There was a lot of printers ink spilled on that but methinks there was more human blood splashed.

Stalin taught the Soviet Union the latest in agriculture and the newest in nose-thumbing at the world.

The rising sun of Nippon shone on China so intensely that the patient Chinese became sunburned and began turning.

Bruno Hauptmann was sparked to the next life in a drab room in New Jersey while Lindberg sought solace in England.

Max Schmeling found the ebony Joe Louis' chin about the time the Supreme Court's hand was raised a winner over the New Deal.

The giant zeppelin, Hindenburg, flew the Atlantic while the China Clipper spanned the Pacific.

Strikes and general labor troubles preceeded President Roosevelt's peace trip to South America.

Britain buried a beloved King, lost a beloved King and hailed a new beloved King.

Grain grew to headlines as nation after nation went into the world markets for bread. Wheat soared to its regal standard. Corn revelled in its new importance. Rye, Oats and Barley threw off the sackcloth of mourning and emerged gay and triumphant. Soybeans proved no flash in the pan by stepping into the prized commodity class.

Elevators sprang up like mushrooms. Board of Trade pits echoed new exuberant shouts.

Christmas saw department stores refilling their stocks again and again. Frowns were replaced by smiles jubilant and confident on the faces of all.

1936 has changed the world! The too long depression has been most efficiently disposed of by the ups

Superintendents



EARL R. EVANS

Earl R. Evans, Champaign, Illinois, representative of the Evans Elevator Company of Decatur, Illinois, has been identified with grain all of his life. Born in the corn belt of Illinois, he grew with each successive crop until he matured a grain man of widely known repute.

Like many another superintendent, Earl R.'s first contact with elevators came when he spent his school vacations swinging a hatchet cooping cars. His father, W. R. Evans, conducted a grain and lumber business and early taught his son the rudiments of the trade. At the age of 22, Earl R. succeeded his father, being associated as partner with C. A. Bunyan under the firm name of Bunyan and Evans.

The partners soon acquired the buying of grain for the New Suffern and Hunt Mills Elevator and it wasn't long thereafter that they bought the elevator outright. Up until 1920 the car movement around the plant attested the steady flow of business. At this point Mr. Evans and partner Bunyan sold their holdings, Earl R. going to Decatur, Ill., and C. A. traveling to Cosmos, Minn.

After a period in Decatur, Mr. Evans received a letter from his old partner. Bunyan had acquired an elevator and wished Earl R. would take charge long enough to put it on its feet. There could be but one answer. The man from Illinois immediately joined the man in Minnesota.

A year sufficed to do the job and E. R. returned to his native state and associated with the Evans Elevator Company. Eight years ago he took charge of the Champaign end and has amply demonstrated since then just how efficient and productive a terminal grain elevator can be.

and downs and general all around shaking up of vital '36!

And so, Dean, I feel—and I imagine everyone else feels—that the new year is going to be one grand and glorious time. How else could it be after the wonderful start 1936 has given it?

Yours truly,

Sandy

Guard your profits...

WITH ACCURATE **Printed** WEIGHT RECORDS!

No scale you may own is more accurate than the poorest-sighted man who will read its dial. No more accurate than smudged, hand-written weight figures jotted down by men in a hurry—*unless* you have a Fairbanks Printomatic Weigher.

There's never any guesswork about weights—for with the touch of a button, the scale reads itself with mechanical accuracy and sets the result down in cold type on your own weight ticket or on a sealed, locked tape for permanent record purposes.

If human eyes read your dial scales . . . if human hands and human brains have to translate the dial's reading on your weight records . . . remember that often a single error would pay for the mechanically perfect weight recording of the Fairbanks Printomatic Weigher. It can be attached to your present Fairbanks scales, or included as original equipment on your new scales. For complete information, address Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, Illinois. And 40 principal cities—a service station at each house.

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FAIRBANKS
PREFERRED THE
WORLD OVER

Scales

Whither Wheat?



The world wheat-crop season runs from August first to July thirty-first, and grain on hand all over the globe at the beginning of a new crop year is termed "carry-over." 1934 saw the wheat season start with a carry-over of 1,159,000,000 bushels. Two years later, August first, 1936, 730,000,000 bushels of wheat answered roll call—a comfortable protection, yes, but one quite likely to be eaten into before 1937 ages to August first.

The American Middle West and the Southern Canadian wheat provinces baked and shrivelled under a scorching sun last summer. Argentina and Australia suffered beneath old Sol's fierce rays last autumn, which is their spring and Western Europe's harvest time was deluged by destroying rains. Result: an estimated 1936-37 carry-over of 500,000,000 bushels, the smallest since 1924-25.

A half billion bushels of wheat seems on the face of it an ample supply between seasons but let us dig into the matter and see what it actually is in regard to world supply. It doesn't appear so ample when spread among the many countries of the earth. In fact, it is a very small cushion for in-between-crops.

The latest figures show that the exporting nations, after setting aside a modest carry-over for themselves, will be shy about 22,000,000 bushels of wheat for the demonstrable market this year. Canada, the leading wheat exporting country, entered this crop year with a 128,000,000 bushels carry-over. To this can be added an expected crop of 233,000,000 bushels, making the total supply 361,000,000 bushels. Deduct 110,000,000 bushels for home consumption and allow 30,000,000 bushels as a paltry carry-over and the net for export is 221,000,000 bushels—con-

siderably less than flowed from the land of the Maple Leaf last year.

Following the same procedure of estimating, i. e., present supplies less home needs and a small reserve, we arrive at the following exporting figures: Argentina, 128,000,000 bushels; Danubian countries, 65,000,000 bushels; Australia, 96,000,000 bushels; Poland, Persia, Turkey, Chile, and Northern Europe combined, 30,000,000 bushels. These added equal 540,000,000 bushels available for export. Against this we have the needs of the importing countries. This season, Europe requires 432,000,000 bushels of wheat; importers outside of Europe will take 95,000,000 bushels and the United States is down for 35,000,000

bushels—a total of 562,000,000 bushels needed as against 540,000,000 bushels expected!

Although the United States is listed as a market for 35,000,000 bushels, the gross imports probably will be more than that figure, possibly high as 50,000,000 bushels; but the Pacific Northwest, drought free, is finding a sizeable market for its abundant white wheat in the Orient and the United Kingdom. This trading will make the net imports about the original 35,000,000 bushels. Curiously enough, Uncle Sam comes out on the losing end of this deal for the exported white wheat is far cheaper than the imported expensive hard wheat.

The old familiar marketing map in the United States has been picked up, twisted apart, and slammed into the corner by the drought and the AAA. No more do the mills of Kansas City and Omaha grind exclusively the fine hard bread wheats of the Southwest. Chicago, Toledo, and St. Louis



*Even a needle, to be useful must keep its
eye open and a pin must have a head.*

WARNING

TO GRANARY WEEVILS SAW TOOTH BEETLES CADELLES

and all other insects
that destroy stored
grains.

A new gaseous fumigant now protects stored grain from insect infestation. It is called Proxate and when properly applied, it destroys all insect life in grain stored in concrete, tile, brick or steel bins. Proxate kills insects in all stages — eggs, pupae, larvae, adults.

Proxate is safe . . . non-explosive and non-inflammable. Non-dangerous to humans. Costly shut-downs are avoided. Germinating powers of raw grains are in no way affected. Leaves no odor or residue. Easily applied.

For detailed information about Proxate, send for free booklet.

THE LIQUID CARBONIC CORPORATION

3110 South Kedzie Ave. - Chicago, Ill.

Branches in 37 Principal Cities of the United States and Canada

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FREE
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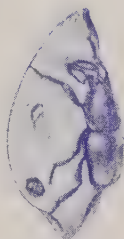
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My name.....
Company.....
Address.....
City..... State.....



Adult granary weevil feeding on kernel



Adult rice weevil feeding on kernel



Adult sawtooth grain beetle



Adult Cadelle

no longer find the "red winter rush" when the farms of Illinois, Indiana, and Missouri yield their crops. Minneapolis and Duluth have almost forgotten the pure, prime spring wheats of the Dakotas, Minnesota, and Montana. White wheat from the West Coast is battling native wheats in the Middle West. Kansas wheat is stampeding around Minneapolis, shouldering out the spring wheat with the help of Canadian, Argentina, and parcels of French wheat. Rollers that had never tasted anything but choice hard wheat now munch a varied assortment; for it was the fine hard milling wheats that were trampled on most severely by the drought and the "planned economies."

Where this increasing mix-up will end, no one knows. A few years may see the kaleidoscopic scene fit into an orderly pattern once more—or time may bring greater upsets. In view of the war alarms pulsing throughout the world today, the scene may blow up to the skies; for when armies march to the hoarse roar of cannon, a kernel of wheat is infinitely more precious than a bullet.



WHY wait until the last minute to replace your old worn out buckets.

Now is the time to get ready for the rush that is sure to come with a big crop.

Be sure to order "Calumet Elevator Buckets" as these buckets will work at any speed or any ordinary condition.

Let us show you how to double your present capacity with your present belt.



B. I. WELLER

Sole Manufacturer

704 HOFFMAN ST.
HAMMOND, INDIANA

327 SO. LA SALLE ST.
CHICAGO, ILL.



It is a fine thing to have ability, but the ability to discover ability in others is the true test.

Drawing The Society's Bins



SPOKANE'S E. A. BOYD WRITES

Mr. E. A. Boyd, President and General Manager of the well known Boyd-Conlee Company, Spokane, Washington, an active officer in national and sectional association activities, writes: "We are only too happy to give the Elevator Superintendents' Association every boost possible and commend their splendid record and activities."



BUT HE COMES BACK TO VISIT

Even though Mr. L. N. Perrin has moved to Minneapolis to take charge of all grain buying for General Mills, he occasionally returns to Chicago to freshen his contacts of yesterday—and his many friends are always glad to see him.



IT WARMS THE SECRETARY'S HEART

It sometimes takes quite a bit of reminding to get some folks to pay their dues, so can you imagine how it stimulates the Secretary's vitals when Frank Beyer of Fort William and Bill Feemster of Baltimore send in their dues before they even get a bill?

Wire Ropes Efficiency

From Page 12

through the grain it will have entirely disappeared.

However, other ropes which are not subjected to the abrasive action of the grain can be covered with a heavy protective coating of lubricant after a more penetrating quality has been applied. The dust will then adhere to the outside coating leaving the interior of the rope free from grit and moisture. Marlin-clad wire rope is in general use for shovels. This construction will hold lubricants much better than ordinary steel rope as the marlin cover serves as a lubricant repository and distributor as well as a protector to both interior and exterior wearing surfaces of the rope. This rope is used where bending and flexibility are the requisites, but is of little use where abrasion or crushing abuse is present.

PROGRESSING NICELY

GODFREY MORGAN, Manager of Elevators, Spencer Kellogg & Sons, Inc., Buffalo, N. Y.: I feel that the Society is certainly progressing very nicely.



It's in the Air



Apologies to "Liberty"

"Would you mind bringing me a pound of CORN sugar on your next trip up?"

SUGGESTS WE HAVE "MIKE"

Sure was a grand convention and it was good to see the boys and the interest they took in the proceedings. Would suggest at our next convention that a "mike" and loud speaker arrangement be made use of for the speakers, as it is hard to speak with effect if one must shout to make themselves heard.—M. Frank Beyer, Superintendent, Grand Trunk Pacific Elevator, Fort William, Ontario.



One reason why there weren't so many accidents in the horse and buggy days is because the horse had a little sense.

DUES

Your Treasurer wishes to remind you,
That he still has the blues,
It's up to you to cheer him,
By sending in your dues.



FINDS ANSWER

"Mr. J. S. Bush had an article on belt lining in the December issue of GRAIN and asked for information from anyone who might have had experience with same. In answer to this request I am giving our results in regard to rubber lining.

"We use a product sold by the Manhattan Rubber Company. It is 30" wide and about 1/4" thick with canvas back. For example, we have four Mayo spouts which wore through about every six months. We lined these with 14 gauge iron and then with this rubber belting on November 8, 1933, and upon examination find it to be as good as the day it was installed.

"We also use it on all belt loaders and wherever the stream might strike, and find it a durable product.

"Enjoy reading 'GRAIN' a lot, having obtained much good information which has been very valuable to me.

"Hope this information may be of some value to someone."—A. O. Halberg, Elevator Superintendent, Pillsbury Flour Mills Company, Springfield, Illinois.



GOOD ASSOCIATION BOOSTER

One of the Superintendents was counselling his young son.

"Kid," he said, "the main purpose in life is to give to others."

"Yes, Dad," said the youngster, "That's a swell idea—if everyone gives, some of us are bound to get something!"



*"I'd love to have your autograph—
To the Member said the "Sec."
"I'd love to have your autograph—
On a 'dues in full' cheque!"*

ANOTHER BRIGHT SPOT IF —

It goes without saying that it would be another bright spot in an elevator man's life for me to be with you during the Superintendents convention. The factors of most interest to West Coast elevator men are the smut assessments and dockage. The Federal Department seem to be getting more strict each year in regard to processing. No doubt there are some who try to put over a 100% processing job without much consideration given to the quality of the work done. . . . The elevators on the Coast are of somewhat diversified interest inasmuch as a certain percent of them are operated as municipal plants and, of course, a few are operated by individual interests. Then, too, we have the flat docks or sack warehouses for storage of sacked grain, to be shipped as such or emptied later to bulk elevators. You will see by this set-up that it would take some little time to obtain a common working interest so as to be attractive and profitable to all who might consider an Elevator Superintendent's District Chapter on the Pacific Coast. This would be a fine undertaking for some of you (Central Western) fellows during your vacation. The troubles of an Elevator Superintendent on the Pacific Coast are not a great deal in common with those in the East, as one of your chief griefs in modern elevators seem to be dust explosions whereas out here we have nothing of that to fear because of our humidity. We have no trouble with the storing of grain for an indefinite period on account of the low moisture content, particularly in wheat. We do, however, have plenty of smut in all varieties of wheat, while you are not much bothered. We handle very little of the coarse grains. However I've frequently thought since attending one of your conventions that we all could profit out here if we only had a chapter.—R. G. Hunt, Superintendent, Port of Tacoma (Washington) Elevator.



UNDER DOCTOR'S ORDERS

George Stingel, veteran Superintendent of the East Peoria (Ill.) Terminal, is recovering nicely from a three months spasmodic seige of illness.



Left: Looking along the top floor of the Shipping Gallery. What is apparently the end is only half way. This is a two-story gallery with two belts in each story.

Right: Looking toward the workhouse along annex floor of the 2,000,000 bushel Churchill Elevator Annex.

*Runs
Aurora
Borealis*

Regret I was unable to attend the Society's convention, but here's greetings from the Western Hemisphere's northernmost terminal elevator, her "top" tide-water port, and the most northerly direct rail connection in North America. We're 58 degrees, 47' north. Churchill is considered an interior prairie wheat growing province. Shipping of all vessels is done by gallery which contains four shipping belts, all of which will, in turn, reach any one of the twenty-three shipping spouts. This structural steel gallery parallels the face of the deep-water dock, which will accommodate at one time three 10,000 ton grain carriers drawing 30 feet of water at low tide. The Harbour is on the Churchill River and is protected from all disturbances from Hudson Bay, and has ample water for movement of fully loaded vessels at either high or low tide. Not only is the elevator built of the latest type of construction (started in 1928 and first shipment made in 1931), but its half-million bushel workhouse and its two million bushel annex (with ample provisions for another six million), its four unloading tracks (with both car dumpers and shovel gears), its four receiving and four shipping scales (each of 2,500 bushels capacity), and its popularly used cleaners have witnessed a continual increase in the tonnage moving through the Port. . . . Hope to see you at next year's convention.—C. A. McCallum, Superintendent, Government Elevator, Churchill, Manitoba.

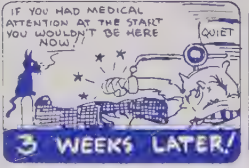
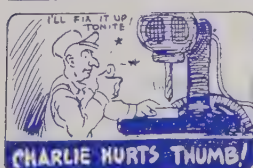
SHOWING INTEREST

We had an occasion to gather all the Elevator Superintendents together to discuss a common problem a while back, and just as the meeting broke up someone asked a question or two about the Society's convention—and really the interest that was shown by those better known men astounded me. I had worked on several to try and get them to come over to the convention last June, but my efforts were nil and not even luke-warmly received; but since this recent gathering I know the Mayor of our City will be a member in a short while, also quite a few more of the Superintendents now outside the fold.—Percy Poulton, Superintendent, N. M. Paterson & Company, Fort William.

REBUTTAL ON SPIRAL SHELF

Responses so far received to the proposal made by Kingston's John S. Bush in GRAIN (December) indicate that this method was attempted years ago but that it failed to prove successful because (a) the shelving pulled out or snapped off, (b) the grain would not stay on the shelf, (c) the grain became so hot that the benefits of the shelf were lost, (d) that the bin capacity was lessened because the grain would not pack beneath the shelving, (e) that the pull of the grain when the bin was being emptied made maintenance too high on the shelf, (f) that it was too expensive to put in and keep up because of movement of tank, and (g) if spouted right same is not needed.

MINUTE SAFETY MOVIES



SUPERINTENDENTS INSPECT HIRAM WALKER'S PLANT

The ultra-modern grain handling facilities employed in the world's largest and most magnificent distillery, owned and operated by Hiram Walker & Sons at Peoria, Ill., were inspected February 20th by nearly fifty members of the Chicago Chapter of the Elevator Superintendents Association and Superintendents from throughout the state.

Following a kernel of grain from its unloading to the final step the grain men received first hand a genuine education in dustless operations, the grain being handled by air or enclosed screw conveyors throughout. Throughout all movements a suction was pulled on the grain.

Instead of a diesel-electric locomotive for switching cars a tractor was advantageously employed . . . Insides of bins are covered with a bakelite finish . . . Above the bins are cleaners, magnetic separators, etc.

One of the very good reasons they have spent so much money in their extensive dust collection equipment is that they have found that in every corner or cavity where grain or grain dust may settle there will collect millions of microbe organisms of which cleanliness is the greatest enemy. These microbe organisms multiply to an infinite degree and some renowned scientists are now advancing the thought that it is these "critters" that generate dust explosions through reaching their "ignition" point.

This plant might well be termed a "push button" institution with its elaborate panel boards with graphs and meters, for almost every step is controlled with push buttons.

Particularly of interest were the grated floors, the laboratory, the bacterial count as a grading factor, the automatic recording Richardson scales—fully closeted, the point that corn for distillers should never be dried over 200 degrees nor too rapidly, and the discussions on types of corn.

Mr. C. M. Zinser received the delega-

MACDONALD AND BROWN ADDRESS CHICAGO CHAPTER

Wm. H. MacDonald, Rosenbaum Brothers, President of the Cash Grain Association of the Chicago Board of Trade, and Ralph H. Brown, Manager of the Grain Department of Shields & Company, recently spoke before the Chicago Chapter of the Elevator Superintendents' Association.

Mr. MacDonald suggested a joint meeting with the heads of the elevator companies that the work of the Association might better be understood; depicted the responsibilities of an Elevator Superintendent; the effect of legislation, the drought, the 241,000,000 bushels of mill storage built outside of market centers within the past decade; Chicago's shrinking consumption of wheat; Chicago's limited storage capacity; the fact that Chicago is a "surplus" market; the limited number of industries to attract grain; the waterway and trucks finding new markets for grain formerly coming to Chicago; competition offered by unsupervised markets, and the dwindling of exports, as the cause of descending receipts.

Ralph Brown predicted "all the surplus Chicago will need to keep mighty busy for some time," in giving a comprehensive outline of such economic factors as nationalism abroad, tariffs and stifled movement, prices and short crops. He forecast an increase in domestic wheat consumption as our citizenry are even now going back to stable foods.

"Larger international trade spells greater movement of cash grain—which will also be brought about by minute stocks on hand abroad, reduced duties and the fact that Europe is unable to increase their production even with intensive cultivation," Mr. Brown said before showing average type samples from most of the surplus producing countries of the world.

"The pendulum is swinging the other way!"

National President Henry S. Cox of General Mills and Chapter President Gilbert Lane of Arcady Farms Milling Com-

LIGHTING PROGRAM LAUDED

"The Minneapolis Chapter just had an interesting and instructive lighting demonstration that really brought the house down," reports E. J. Raether, Brooks Elevator Company, Secretary of the Minneapolis Chapter. We were shown what really could be done in lighting an elevator when the proper lights were used and properly installed.

"The forty present were unanimous in stating that this was the most informative meeting we've yet held.

"As guests we had the Minnesota Appeal Board, Messrs. Zimmerman, Shelly and Gislason. All three gave fine talks and were greatly impressed with our Association and surprised at our large membership. They told us that with co-operation from us they were sure that we would all get along fine, and they were certain we would give them that."

APPENDAGE

"Since writing the article, 'Spiral Shelf' for the prevention of broken grains in high bins I have ascertained a formulae for calculating the velocity of the grain on the shelf and the limiting angle of inclination," advises Mr. John S. Bush of the Kingston (Ont.) Elevator.

As a rough estimate the friction resistance to the passage of grain would be

$$y \cos \theta \times \frac{v^2}{gr}$$

This would produce a limiting angle given by

$$\sin \theta = y \left(\cos \theta \times \frac{v^2}{gr} \right)$$

where θ = angle of inclination of shelf; r = radius of curvature; v = velocity of grain in feet per second, and y = coefficient of friction.

You will appreciate, however, that there are many varying conditions which must be taken into consideration, such as expansion, the updraft of air cause by displacement, and the general turmoil of the air currents.

I will certainly appreciate any further comments.

pany spoke at length on the tremendous value of such a trip to the membership.



"There is no victory in retreating."

Here's the Dope

ORSTAD "STEALS" SUPERINTENDENTS CONVENTION FOR FT. WILLIAM-PT. ARTHUR

Second Vice President S. S. Orstad literally "stole" the eighth annual convention of the Society of Grain Elevator Superintendents of North America at a recent Directors' meeting, shutting out strong bids from Toronto and other equally persistent centers.

In retaliation he was wisely selected as General Convention Chairman, and has already started the wheels in motion for the biggest and best gathering on record.

A questionnaire is being sent to the Superintendents on program suggestions and the membership in Fort William-Port Arthur, as well as from there eastward, is getting well under way towards bringing a most representative attendance from throughout the continent.

Mr. Orstad is manager of the Federal Grain and Northland Elevator companies at Fort William.

POULTON PULLS BACK CURTAINS

"It is hoped that the boys on the other side of the Line will not fail us in our first attempt to do something for the Society," writes Percy Poulton, Superintendent of N. M. Paterson & Company's 4,000,000 bushel terminal at Fort William. "We shall need their attendance at the Convention in large numbers and their active co-operation for its success.

"General Convention Chairman Sig. Orstad has a great deal of driving energy and intelligent mental equipment behind that massive forehead.

"We have several other outstanding personalities up here, all men of substantial calibre, and together they will see that the Convention is properly organized and of genuine interest on important matters."

PAGING JOHN BUSH

It would be interesting to get John Bush's co-efficient of friction for soybeans and steel," writes a Superintendent, "for we've found that soybeans wear out linings vastly faster than does grain."

CONVENTION DATES CHANGED TO JUNE 14-15-16

Due to the conflict with the annual convention of the Association of Operative Millers, Mr. S. S. Orstad, Manager of the Federal Grain and Northland Elevator companies of Fort William, announces that the dates for the eighth annual convention of the Society of Grain Elevator Superintendents have been moved up a week to June 14-15-16, with a Directors' meeting on June 13.

FIRST CONVENTION RESERVATION

"Will be at the Convention in Fort William-Port Arthur," writes W. H. Teppen of the Occident Terminal Division of Russell-Miller Milling Company, Duluth, Minn.

"Some reservations have already been made by Minneapolis members and if there is anyone for whom we can make arrangements please have them write," says Chairman Orstad.

WHAT '37 MEET HOLDS FOR YOU

"The laws of compensation are 'Results shall be in proportion to effort put forth and never greater.'

"One cannot think failure and expect to meet success. To be successful, one must think it, live it and make the effort," writes M. Frank Beyer, Superintendent of the Grand Trunk Elevator at Fort William.

"That's why the 1937 Convention is bound to be outstanding," he states with warranted confidence.

CONVENTION CITY WORLD'S STORAGE CAPITOL

Fort William-Port Arthur, twin ports of the Head of the Lakes, hold the undisputed title to being the World's Grain Storage Capitol with nearly 100,000,000 bushels of space . . . Another Postman's holiday for the Convention-goers. Fort William and Port Arthur are side by side.

TO SALUTE HIS GREETINGS

Genial Captain R. J. Wilson, Commander of Paterson Steamships Limited's "P" line of thirty-one grain boats, a well liked personality widely known to most all the Elevator Superintendents on the Great Lakes,



CAPTAIN WILSON

writes that he hopes to meet his many friends at the Fort William-Port Arthur Convention in June. Those who haven't had the pleasure of meeting "Captain Bob," whose big task it is to keep the PATERSON FLEET moving economically, are invited to do so.

Captain Bob says: "It costs just as much to keep a boat tied to a dock in the course of taking or discharging a cargo as it does to keep her steaming on the Lakes," therefore 'despatch and more despatch' at docks is his chief concern—it constitutes his driving ambition.

All steamship lines have only one prayer: "Give Us DESPATCH," and Captain Wilson must be the answer to that prayer.

CONVENTION CITY SUPERINTENDENTS MEET

"We had an enthusiastic dinner meeting here Saturday," advises General Convention Chairman S. S. Orstad, Manager of the Federal Grain and Northland Elevator companies of Fort William. "Committees have been appointed for every detail and they're going to work in a big way."

BRING OWN "SMOKES" TO CONVENTION

"Bring your own favorite brand of 'smokes' to the Convention," advises Percy Poulton, "for you'll have to pay double here."

Out of the Blower

EXPLAINS WHY

On a recent swing through the Southwest I was much intrigued by an old Negro spiritual sung by darky shovelers in an Elevator in Texas. Am passing it along to you as I thought it mighty interesting.—S. T. Gibson.

De Lawd at de start made de wheat;
De Lawd at de start made de corn;
And den He made people who had to eat—
Dats how Elevators be born.

NOVEL IDEA WORKS

At a recent gathering of National Safety Councils' sectional News Letter Editors the personnel manager of a very large eastern firm told of the success his firm and their industry was experiencing—particularly in face of unrepresentative, leech-like union activities—of the following plan:

A "merit" bonus over the established scale is paid each employee based upon ability, accident-frequency, attitude and promptness. Each is re-rated every three months on the record made during the previous period. "It works like a charm," according to testimony.

A physical examination is prerequisite to getting a job, and in the grain handling industry might reveal much valuable information where not hitherto a practice.

AIR FIRST, THEN SEND TWO

Always air bins before sending men into them, especially where corn and oats have been stored. Then, as an additional and quite desirable precaution, send two sweepers into the tank rather than just one—according to discussions at the recent Society convention.

NEVER HAD A LOSS

Wonder if the owners and operators know that there never has been one dollar's loss from dust explosion in elevators protected with correct venting sash? Seems an insurance credit ought to be accorded.—Blast Hound.

DUST SYSTEM "STANDARDS" OUT

The National Fire Protection Association just announces the release of the latest regulations of the National Board of Fire Underwriters for power operated dust removal systems.

Protection against static, a much discussed question at the last Elevator Superintendents' convention, is touched upon.

Next year's N.F.P.A. convention is announced for the week of May 10, in Chicago's Congress Hotel.

GOING UP, WE'LL SAY

And here is something to talk about! The number of wage earners in 1897 was a little more than 49,000 per 1,000,000 inhabitants. For 1929 the corresponding figure was about 73,000.

MOISTURE CHANGES IN STORED GRAINS

While no further work on the relation between stored grain moisture and atmospheric conditions has been conducted by the U. S. Bureau of Agricultural Engineering, Chief R. B. Gray suggests interested Superintendents write the Agricultural Engineering Department, Kansas State Agricultural College, Manhattan, for a copy of "Specific Gravity and Air Space in Grains."

FAULTY

"Faulty instruction causes about 30% of our industrial accidents; lack of discipline causes 12%," reports the National Safety Council.

PAGING JACK!

Louis Firpo, The Wild Bull Of The Pampas, was imported to these shores—but Jack Dempsey took care of him. How about the grain trade hiring Jack?

NOW IF THEY CAN BE CROSSED WITH THE WEEVIL —

Popular Science Monthly reports an insect in Borneo that bails out from a tree branch or whatever high spot it gets into, using its downy antennas to "parachute" it to the ground. Now if the elevator executives would only cross this species with the weevil they'd end a costly problem—provided they'd also discover the "scat" word to scare the weevil into such "gliding."

PAGING A GOOD MILLWRIGHT!

An acre of good corn gives off 3,000 TONS of water during its growth, says **Popular Science Monthly**. With one of Rube Goldberg's cartoons as a guide surely this waste can be circumvented by some ambitious millwright.

BAD NEWS

Catching his coat in a revolving pulley which swung him over the shaft resulted in severe bruises for Carl Ekman of the Omaha (Neb.) Flour Mills Company.

Forced to jump when the automatic shut-off on a manlift failed to work, Frank Ross of the (Grand Island) Nebraska Consolidated Milling Company fractured his heels and will be confined for quite some time.

WHAT A BUSINESS

What a business!

They decry having a short crop in the Northwest, break buttons off their vest boasting that in the Southwest they handled the heaviest movement since 1931 **without a car shortage**, the Inland Empire of the Rockies to the Pacific are selling their grains both to Asia and Europe (when they can get it loaded into bottoms) and the Atlantic Coast territory is staggering under the weight of foreign-grown crops. What a business!

On the other hand, most everyone's pretty busy.



EXCLUSIVE

Jealous Tramp (watching holiday crowds)—"I hates holidays."

Second Ditto—"Same here. Makes yer feel common when nobody ain't workin'."

★

An Elevator is termed so because it elevates the standard of living by supplying the essential foods.

★

RAH, RAW

Mr. Ippy: Why don't they need a cook in a nudist camp?

Mississippi: Because they eat in the raw.

★

If Il Duce succeeds in raising an Ethiopian grain crop, his first market probably will be North America. . .

★

BANG!

Chaffy: Say, how did Battle Creek, Michigan, get its name?"

Daffy: Don't know, unless it's because they start so many breakfast feuds there.

★

A chain is no stronger than its weakest link. Teamwork is essential in safety work."

★

OKAY, TOOTS

Inspector Wise had been forced to administer some chastisement to his four year old daughter. Whimperingly she ran to her mother and said, "Muvver, next time you go to the hospital don't get sumpin like Daddy."

★

Let's see how many words we can make from the word TERMINAL without using the same letter twice! Here's my selection:

REAL—MEN—ARE—IN—'EM!

THE HARD CURE

Doctor: "Your nerves are frazzled, what you should do is to stop thinking about yourself—bury yourself in your work!"

Patient: "Oh, oh! And me a cement mixer."

★

America evidently believes the old saying: "A half loaf is better than none!"

★

ACCIDENT?

Dusty: How did Bill die?

Musty: He fell through some scaffolding.

Dusty: What was he doing up there?

Musty: Being hanged.

★

Another drouth, and the corncob pipe will make the meerschaum or briar a badge of poverty.

★

No Substitute

Who said Spanish onions weren't odorou's?

★

THE DEFAULTER

Superintendent Hard Red, who favors the liquid by-product of corn, was host the other day to three other superintendents of similar realization of values. Beamingly he brought forth three gallon jugs and set them upon the table. A deep silence fell and finally one of the visitors said, "What's the matter Hard, aren't you drinking with us?"

★

The State of Texas can feed the world—yet this continent, of which Texas is only a small part, must go to market to buy its bread!

★

Love May Grow

Officer—You've been doing 60 miles an hour. Don't you care anything about the law?

Miss Karo—Why, officer, how can I tell? I've only just met you.

★

Two popular ways of committing suicide are by turning on the gas and by stepping on it.

GENTLE HINT

"Who was that pretty little thing I saw you with last night?"

"Will you promise not to tell my wife?"

"I promise."

"Well, it was my wife."

★

'Tis better to oscu-late than never at all.

★

*America, The Melting Pot!
Argentine corn and German rye,
Polish barley—BUT, WHY, OH, WHY?*

★

NEIGHBORLY DIG

"How are you, Mrs. Brown?"

"Oh, I've nothing to grumble at."

"Mr. Brown away then?"

★

UNTO THE BRAVE

The lady held a lump of sugar between her teeth. The lion also held the same bit of sugar between its teeth at the same time.

Said the Barker: "Anyone want to try it?"

Visiting Superintendent: "Sure, take the lion away."

★

Definition of the initials N.A.: NOT ANY!

★

POINT OF VIEW

The Pastor was examining one of the younger classes and asked the question, "What are the sins of omission?"

After a little silence one hopeful offered, "Please, Sir, they're the sins we ought to have committed and haven't."

★

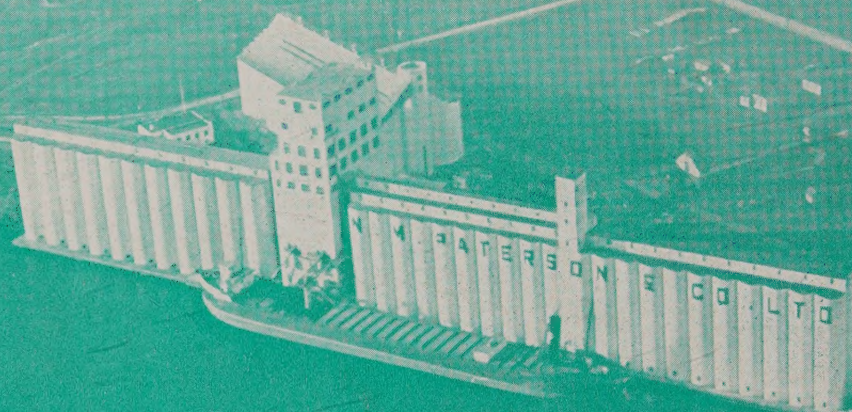
That yelp of pain you hear is caused by South America stepping on the Middle West's corn.

★

EVENTIDE

When we come to the end of a perfect day
And the sun sinks low in the West;
We'll feel a heck of a lot happier
If we have done our best.

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